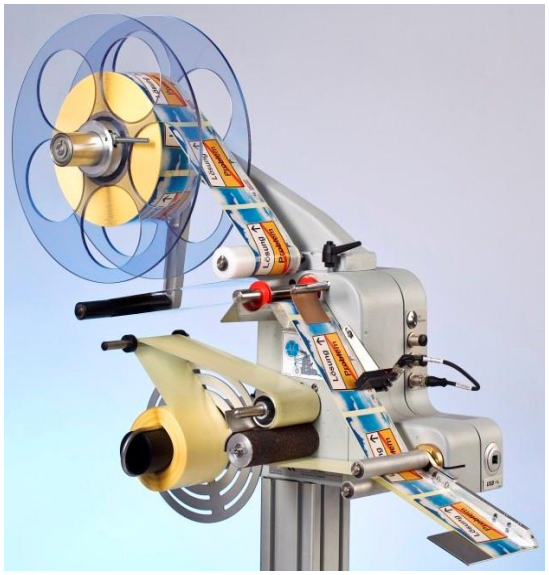
Technical Information

Alpha Compact



Technical Specifications:	
Label size:	Min. 10 x 20 mm (W x H) Max. 150 x 300 mm (W x H) Higher label lengths can also be applied at reduced speed resp. application rate Minimum label gap 3mm
Label roll, outside diameter:	Maximum roll-Ø =300 mm; maximum running length =450 m Core = 76 mm (3 ñ)
Maximum application rate:	Up to 600 rates/min (depending on label size)
Application accuracy:	+/- 0,8 mm (related to the repeatability at the peeler bar)
Maximum application speed:	70 m/min, depending on label size
Maximum liner width	= dispenser width + 4mm (e.g.: Alpha Compact 120 = max. 124mm liner width)
Dimension: (H x W x D in mm)	590 x 310 x 715
Weight:	22kg depending on version
Power connection:	90 ~ 240 V / 47 ~ 63 Hz
Power consumption:	200 Watt
Ambient temperature:	10 ï 38 °C
Environmental conditions:	20 ï 90 % relative humidity (non condensing)
Protection class:	IP 40
Cabinet:	Aluminium casting, powder coating RAL 9006, consisting of two parts

Charateristics:

- **configurable machine**
- **applicator control is integrated in cabinet**
- **performance peaks up to 600 labels/min**
- **fast change of label size due to a simple labeling calibration function**
- **three different interface variants for customer-focused applications**
- **position accuracy up to +/- 0,8mm**
- **infinitely shaft encoder regulation in the range of 0 ï 70m/min**
- **uniform applicator draft of PAS section**
- **USB interface enables up- and download of applicator setup**
- **automatic detection of bad tags (skip function)**

Classification of Alpha Compact

Type	Description of the system
Pre-configured Alpha (basic version)	Wipe On label applicator, 120mm or 150mm width, right and left version, is the Standard Alpha which is available immediately.
Field Installable Options	Field Installable Options are available ex stock and can be installed by the customer on-site with the help of an installation instruction.
Factory Installable Options	Options that are installed and tested ex-factory after placing the system order.
Modular construction	The Alpha Compact can be assembled modular. It will be assembled ex-factory according to the appropriate instructions.

Pre-configured Alpha Compact 120mm Width

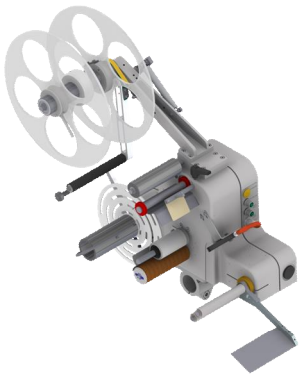


Fig. Alpha Compact 120mm LH
Art. No. 32100034

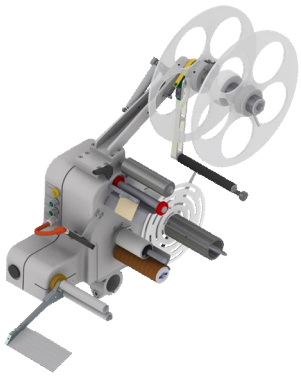


Fig. Alpha Compact 120mm RH
Art. No. 32100033

The pre-configured standard **Alpha Compact 120mm LH (32100034)** and **Alpha Compact 120mm RH (32100033)** consist of the following components:

- Alpha Compact 120mm LH or RH
  - Working width 120mm
  - left or right version
  - speed range 0-60m/min, infinitely variable
  - Wipe On peeler plate, 150mm length, swinging
  - label detection by opacity fork sensor from Disoric
  - unwinder for label roll diameter up to 300mm
  - connector for HMI
  - connector for product sensor (PNP)
  - connector for alarm lamp
  - connector for low label sensor
  - connector for shaft encoder
  - connector for I/O interface
  - FK40 mounting bracket with screws
  - Documentation in German

Pre-configured Alpha Compact 150mm Width

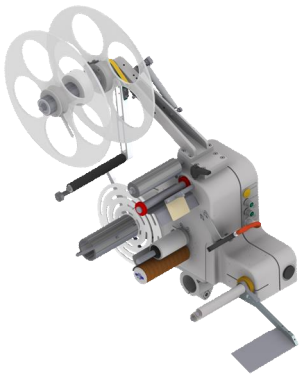


Fig. Alpha Compact 150mm LH
Art. No. 32100044

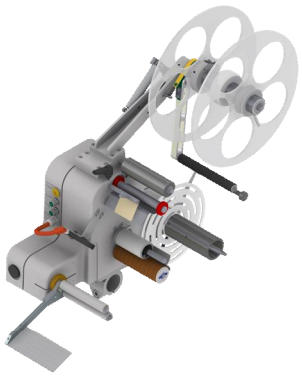


Fig. Alpha Compact 150mm RH
Art. No. 32100043

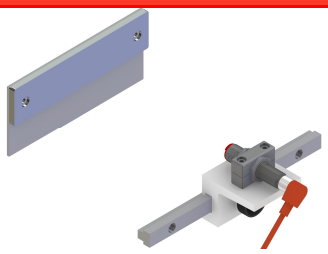
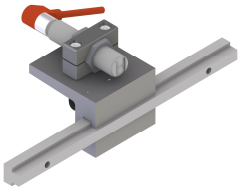
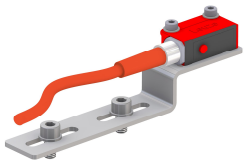
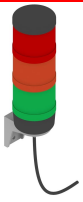
The pre-configured standard **Alpha Compact 150mm LH (32100044)** and **Alpha Compact 150mm RH (32100043)** consist of the following components:

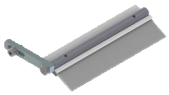
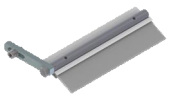
- Alpha Compact 150mm LH or RH
  - working width 150mm
  - left or right version
  - speed range 0-40m/min, infinitely variable
  - Wipe On peeler plate, 150mm length, swinging
  - label detection by opacity fork sensor from Disoric
  - unwinder for label roll diameter up to 300mm
  - connector for HMI
  - connector for product sensor (PNP)
  - connector for alarm lamp
  - connector for low label sensor
  - connector for shaft encoder
  - connector for I/O interface
  - FK40 mounting bracket with screws
  - Documentation in German

Field Installable Options

Field Installable Options are simple assembly groups that are available pre-configured ex stock. The options can be easily adapted and installed by the customer with enclosed installation instruction.

Depending on customerôs requirement it is also possible to complete the applicator with the Field Installable Options in our headquarter.

Field installable options	Art.-No.	Description	Figure
Trigger sensor Light barrier adjustable	32700070	Incl. bracket, mirror and T-rail (PNP)	
Trigger sensor Reflective sensor adjustable	32700071	Incl. bracket and T-rail (PNP)	
Trigger sensor Cable for external start	35001812	5m cable with plug for connection to customerôs PLC. Open cable end	
Low label warning	35001817	For connection to Alpha Compact. Axial scanning of the label roll. Signal available by alarm lamp and I/O interface	
Alarm lamp 3-colored	22702287	Green, yellow, red light incl. cable. Light diameter 71mm, height 172mm, IP65, LED	

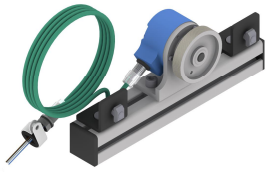
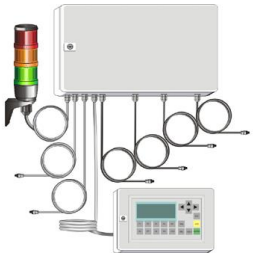
Field installable options	Art.-No.	Description	Figure
HMI Panel	35001815	Simple operation of basic functions by panel. Basic functions by push-buttons, speed regulations and offset (label position at peeler bar) by two potentiometer.	
HMI Display	40014836	Simple operation of all functions. Complete functions monitoring and adjustment possible. Display is absolutely necessary for combination with applicators.	
Pusher roller 120mm width	35081019	PU-roller diameter 40mm, length 125mm. To push labels onto flat product surfaces	
Pusher brush 120mm width	35081020	Brush with bristle length of 25mm, 125mm width. To push labels onto uneven product surfaces.	
Pusher roller 150mm width	35081028	PU-roller diameter 40mm, length 155mm. To push labels onto flat product surfaces	
Pusher brush 150mm width	35081029	Brush with bristle length of 25mm, 155mm width. To push labels onto uneven product surfaces.	
Power cable EU Power cable USA Power cable UK Power cable Switzerland	33709377 33709375 33709378 33709376	Power cable for connection to Alpha Compact. Length of power cable 2m.	
Power cable open cable end	29801903		

Technical Information

User Manual German User Manual English User Manual French User Manual Swedish User Manual Dutch Other languages on demand	32708714 32708612 32708722 32708825 32708862 99999999	User Manual Alpha Compact.	
Connection cable to IO socket	35002078	5m cable length, open cable end, 8-pins	
Connection cable to IO socket	35002080	10m cable length, open cable end, 8-pins	
Clamp terminal for IO interface and product sensor	32800034	Universal I/O clamp terminal for Alpha Compact Rittal Box 200 x 150 x 80 according to wiring diagram -M12, 8 pin. cable, 5m, for I/O Interface X9 -M12, 4 pin. cable, 5m, for product sensor connection X2 -3x bolting M16, 1x M25	
Filter-regulator-unit	22800604	Is required additionally at each pneumatic unit to filter the air and to protect the pneumatics from dirt.	

Factory Installable Options

Factory Installable Options are assembly groups that are combined with the applicator in our headquarter and they have to be tested. These options can also be retrofitted on-site by an experienced technician.

Factory installable options	Art. No.	Description	Figure
Language package 2	22800871	Languages are listed in chapter ĂHMI Displayñ	
Shaft encoder fixed	22702443	Incl. bracket, friction wheel, connection socket and cable	
Shaft encorder Spring loaded	22702444	Incl. bracket, friction wheel, connection socket and cable	
Splitter box shaft encoder	22801378	For connection of two Alpha Compact to one shaft encoder	
Zero Down Time Controller	35001961	To control two Alphas connected in series. Further information on exact mode of operation can be found in the controllerôs manual	

Modular construction Alpha Compact

In modular construction, the Alpha Compact will be fragmented in its single modules depending on width. It can then be assembled by the price list according to the customerôs requirements.

The basic modules consist of:

- Basic Alpha Compact
- Label detection
- Applicator
- Unwinder

Besides these basic modules, also the suitable Field Installable Options or Factory Installable Options have to be/may be selected.

The Alpha configured on the basis of the modules will then be mounted, tested and supplied according to the customerôs requirements.

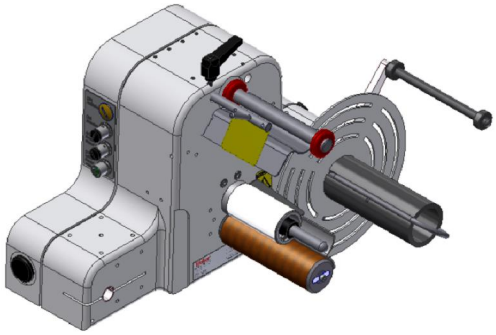
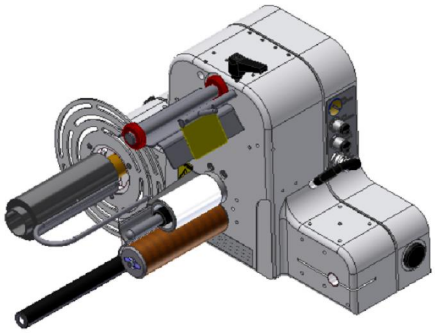
Enclosed some examples for using the modular construction:

1) Customer requires an Alpha Compact, 120mm width, RH, wipe on peeler blade, label detection via micro switch
   - ⇨ You have to select modular construction, because the standard wipe on Alpha (32100033) is equipped with Disoric label detection.
   - ⇨ You have to choose the Basic module in 120mm width, RH (32100053), from module label detection the micro switch RH (35001895), from module Unwinding the RH, 120mm width (35001875) and from module Application the wipe on peeler blade, 120mm width, RH (35081016).
   - ⇨ You have to choose further parts like power cord, HMI, Pusher and further options.

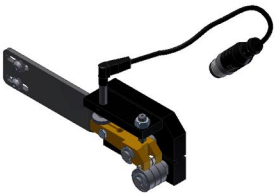
2) Customer requires an Alpha Compact, 120mm width, RH, Tamp Blow applicator PH250, label size 100x140mm (W x L), label detection standard Disoric
   - ⇨ You have to select modular construction, because the standard wipe on Alpha (32100033) is equipped with wipe on peeler bar.
   - ⇨ You have to choose the Basic module in 120mm width, RH (32100053),from module label detection the Disoric (35001789), from module Unwinding the RH, 120mm width (35001875) and from module Application the PH250 (35001906) and the tamp pad from the options in size 120x160mm (W x L). It is important only to use tamp pads, which are suitable for the applicator
   - ⇨ You have to choose further parts like power cord, HMI, Pusher and further options.

Modular Assembly Groups Alpha Compact 120/150mm Width

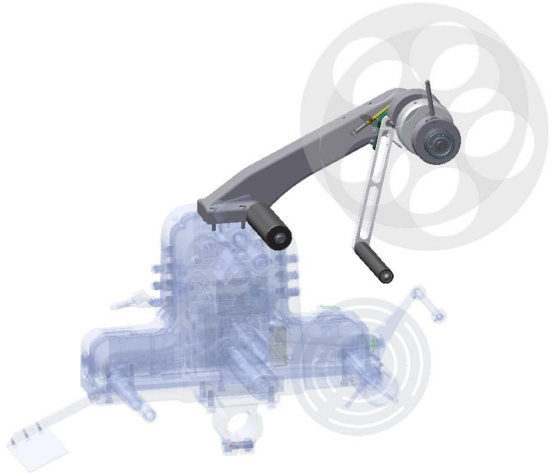
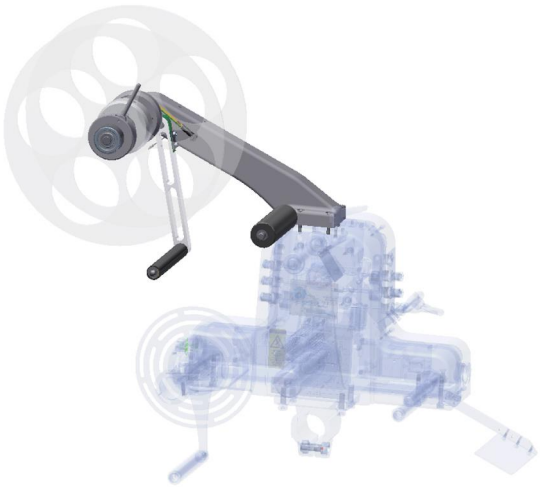
Modular Basis

	
Art.-No.: 32100053 (120mm)/ 32100051 (150mm)	Art.-No.: 32100054 (120mm)/ 32100052 (150mm)
Alpha Compact, 120/150mm, RH, Version, Basis	Alpha Compact, 120/150mm, LH, Version, Basis

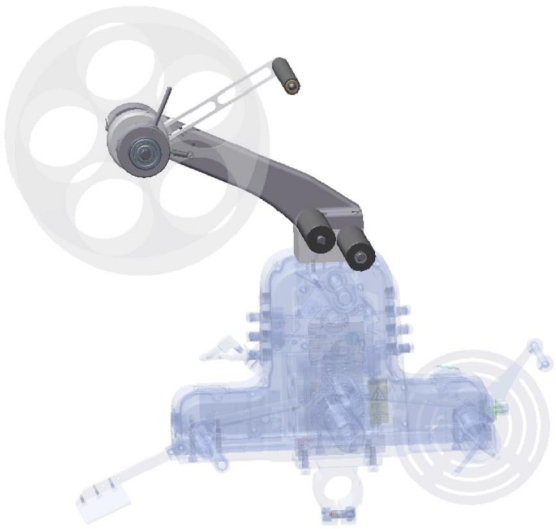
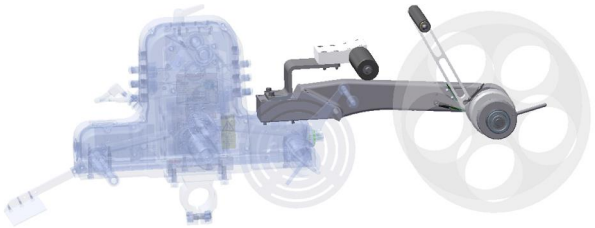
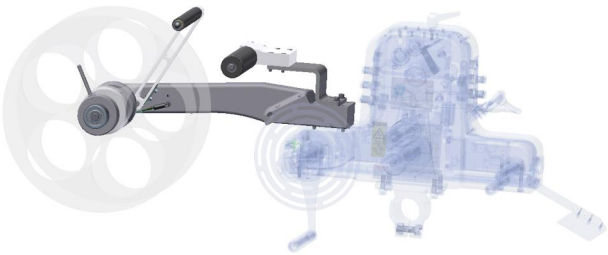
Module Label Detection

			
Art.-No.: 35001789	Art.-No.: 35001896	Art.-No.: 35001895	Art.-No.: 35002651
Standard Disoric opacity fork sensor LH/RH	For transparent labels with micro switch LH	For transparent labels with micro switch RH	For transparent labels with ultra-sonic sensor LH/RH

Module Unwinding

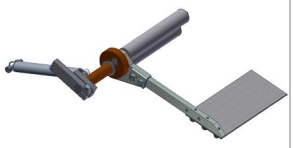
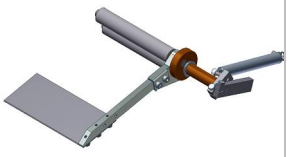
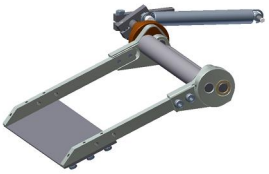
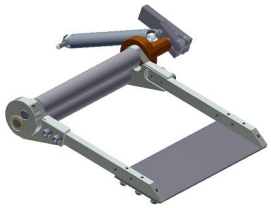
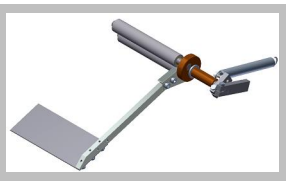
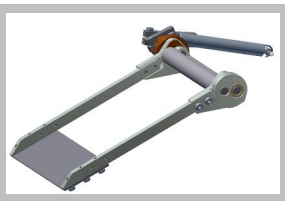
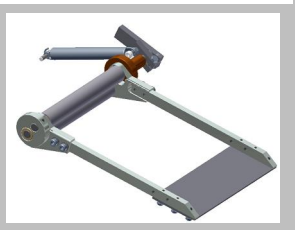
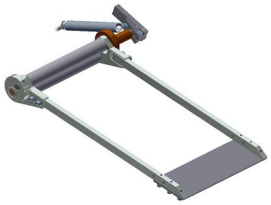
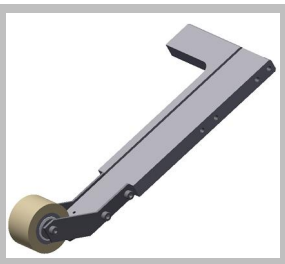
	
Art.-No.: 35001875 (120mm)/ 35002167 (150mm)	Art.-Nr.: 35002060 (120mm)/ 35002174 (150mm)
Standard, 310mm diameter plate, RH	Standard, 310mm diameter plate, LH
Art.-No.: 35002727 (120mm)/ 35002729 (150mm)	Art.-No.: 35002726 (120mm)/ 35002728 (150mm)
Displaced 90° upwards, 310mm diameter plate, RH	Displaced 90° upwards, 310mm diameter plate, LH

Module Unwinding

	
Art.-No.: 35002731 (120mm)/ 35002733 (150mm)	Art.-No.: 35002730 (120mm)/ 35002732 (150mm)
Displaced 180° forwards, 310mm diameter plate, RH	Displaced 180° forwards, 310mm diameter plate, LH
	
Art.-No.: 35002596 (120mm)/ 35002614 (150mm)	Art.-No.: 35002597 (120mm)/ 35002615 (150mm)
Collar installation, 310mm Diameter plate, RH	Collar installation, 310mm diameter plate, LH

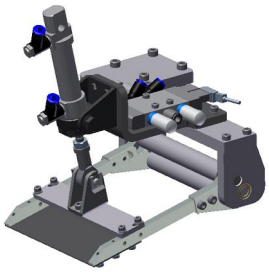
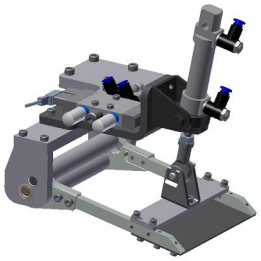
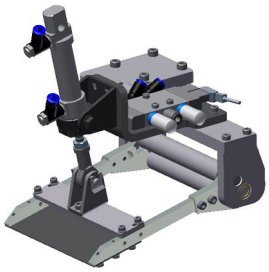
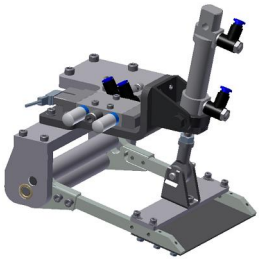
Module Application

Wipe On

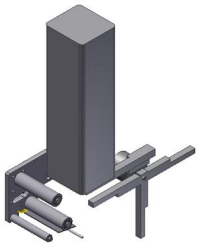
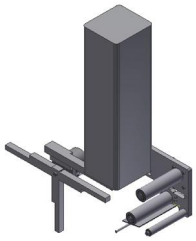
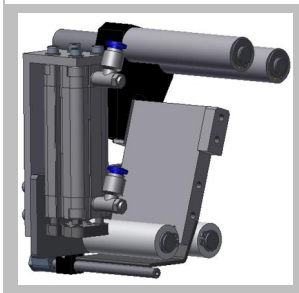
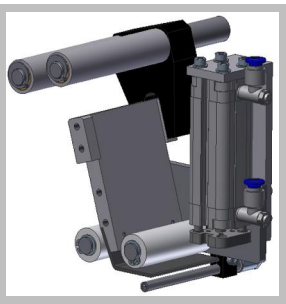
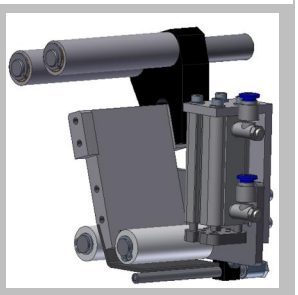
			
Art.-No.: 35081016	Art.-No.: 35081017	Art.-No.: 35001930	Art.-No.: 35001974
Wipe On, RH, pendular Width of peeler blade: 120mm Length of peeler blade: 150mm	Wipe On, LH, pendular Width of peeler blade: 120mm Length of peeler blade: 150mm	Wipe On, RH, pendular Width of peeler blade: 150mm Length of peeler blade: 150mm	Wipe On, LH, pendular Width of peeler blade: 150mm Length of peeler blade: 150mm
			
Art.-No.: 35002687	Art.-No.: 35002689	Art.-No.: 35002691	Art.-No.: 35002693
Wipe On, RH, pendular Width of peeler blade: 120mm Length of peeler blade: 200mm	Wipe On, LH, pendular Width of peeler blade: 120mm Length of peeler blade: 200mm	Wipe On, RH, pendular Width of peeler blade: 150mm Length of peeler blade: 200mm	Wipe On, LH, pendular Width of peeler blade: 150mm Length of peeler blade: 200mm
			
Art.-No.: 35002688	Art.-No.: 35002690	Art.-No.: 35002692	Art.-No.: 35002694
Wipe On, RH, pendular Width of peeler blade: 120mm Length of peeler blade: 300mm	Wipe On, LH, pendular Width of peeler blade: 120mm Length of peeler blade: 300mm	Wipe On, RH, pendular Width of peeler blade: 150mm Length of peeler blade: 300mm	Wipe On, LH, pendular Width of peeler blade: 150mm Length of peeler blade: 300mm
 here shown with X1Jet and pusher brush (not included in the scope of supply)			
Art.-No.: 35002154	Art.-No.: 99999999	Art.-No.: 99999999	Art.-No.: 99999999
Modular application fixed, with support for X1Jet or IJet RH/LH Consultation with application engineering department is necessary.	Milled peeler blade, customer-specific, straight version without roll	Milled peeler blade, customer-specific, straight version with roll	Milled peeler blade, customer-specific, straight, cranked version with roll

Module Application

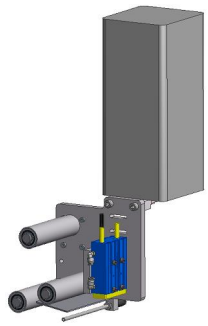
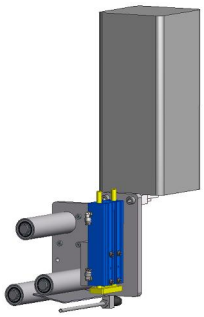
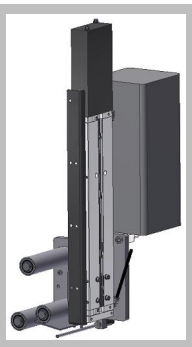
Wipe On

			
Art.-No.: 35002703	Art.-No.: 35002704	Art.-No.: 35002707	Art.-No.: 35002705
Pneumatic peeler blade, RH Width of peeler blade: 120mm Length of peeler blade: 150mm Stroke at peeler bar: 30mm Please find further information in the TI in the category accessories labeling.	Pneumatic peeler blade, LH Width of peeler blade: 120mm Length of peeler blade: 150mm Stroke at peeler bar: 30mm Please find further information in the TI in the category accessories labeling.	Pneumatic peeler blade, RH Width of peeler blade: 150mm Length of peeler blade: 150mm Stroke at peeler bar: 30mm Please find further information in the TI in the category accessories labeling.	Pneumatic peeler blade, LH Width of peeler blade: 150mm Length of peeler blade: 150mm Stroke at peeler bar: 30mm Please find further information in the TI in the category accessories labeling.

Applicators (further information can be obtained in the respective applicator TI´s)

			
Art.-No.: 35001906	Art.-No.: 35002031	Art.-No.: 35002029	
PH250 Tamp Blow 250mm linear stroke LH/RH usable stroke length minus 24mm, max. label size 120x160mm (WxH) can be adjusted in usable stroke length at any length, compatible for quick change tamp pad, operation is only possible by HMI Display Without tamp	PH90/180 90°/180° Rotating tamp, 250mm Swing arm length, LH, max. conveyor speed 15m/min, 15 ï 25m/min only with option Shock absorber, max. label size 120x160mm (WxH) Operation is only possible by HMI Display Without tamp	PH90/180 90°/180° Rotating tamp, 250mm Swing arm length, RH max. conveyor speed 15m/min, 15 ï 25m/min only with option Shock absorber, max. label size 120x160mm (WxH) Operation is only possible by HMI Display Without tamp	
			
Art.-No.: 35002437	Art.-No.: 35002438	Art.-No.: 35002439	Art.-No.: 35002440
TBM50 RH Tamp Blow Mini, 50mm Stroke, RH, usable stroke length minus 11mm Outlet width 58mm, Max. label size 52x52mm (WxH) Without tamp	TBM50 LH Tamp Blow Mini, 50mm Stroke, LH, usable stroke length minus 11mm Outlet width 58mm, Max. label size 52x52mm (WxH) Without tamp	TBM25 RH Tamp Blow Mini, 25mm Stroke, RH, usable stroke length minus 11mm Outlet width 58mm, Max. label size 52x52mm (WxH) Without tamp	TBM25 LH Tamp Blow Mini, 25mm Stroke, LH, usable stroke length minus 11mm Outlet width 58mm, Max. label size 52x52mm (WxH) Without tamp

Applicators (further information can be obtained in the respective applicator TI´s in the category accessories labeling)

			
Art.-No.: 35002972	Art.-No.: 37120187		
HS50 LH/RH Light construction for High Speed applications usable stroke length minus 23mm, max. label size 120x90mm (WxH) compatible for tamp with construct, Operation is only possible by HMI Display Without tamp	HS100 LH/RH Light construction for High Speed applications usable stroke length minus 23mm, max. label size 120x90mm (WxH) compatible for tamp with construct, Operation is only possible by HMI Display Without tamp		
			
Art.-No.: 35002973	Art.-No.: 35002974	Art.-No.: 35002975	Art.-No.: 37120182
KH100 LH/RH Stable construction, usable stroke length minus 23mm, Max. label size 120x160mm (WxH) Tamp with construct is possible, Quick change tamp is possible Without tamp	KH200 LH/RH Stable construction, usable stroke length minus 23mm, Max. label size 120x160mm (WxH) Tamp with construct is possible, Quick change tamp is possible Without tamp	KH300 LH/RH Stable construction, usable stroke length minus 23mm, Max. label size 120x160mm (WxH) Tamp with construct is possible, Quick change tamp is possible Without tamp	KH400 LH/RH Stable construction, usable stroke length minus 23mm, Max. label size 120x160mm (WxH) Tamp with construct is possible, Quick change tamp is possible Without tamp

Technical Details

HMI Panel

- handy and robust HMI (aluminum milled)
- operation by 2 potentiometers and 4 buttons
- the left potentiometer is used for speed adjustment
- the right potentiometer is used for label-stop-position at peeler bar
- with a particular key combination, the functions of the potentiometer can be turned off (key lock)
- dimension: 60x80x20mm (HxWxD)
- weight: 0,25kg
- cable length: 1,5m
- swiveling bracket

HMI Display

- handy two-lines display (aluminum milled)
- font size 9mm
- background lighting
- multilingual

  language package 1 including

  (English, German, Italian, French, Dutch, Norwegian, Swedish, Turkish)

  language package 2 for selection

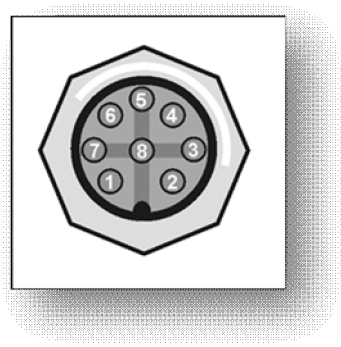
  (English, Russian, Czech, Latvian, Polish, Spanish, Portuguese)
- complete access to all adjustment parameter
- up to 9 label sizes can be stored
- error display
- shaft encoder parameterization
- label counter
- start delay
- label position at peeler bar
- dimension: 100x170x20mm (HxWxD)
- weight: 0,6kg
- cable length: 1,5m
- swiveling bracket

I/ O Interface

The I/O interface serves for the connection of Alpha Compact with new system options or the customer`s controller

Pin assignment:

1. Output signal: **Ready**, (n.o.) max: 200mA, max. 30V
2. Output signal: **Roll end pre-warning**, (n.o.) max. 200mA, max. 30V
3. Output signal: **Sync**, (n.o.) max: 200mA, max. 30V
4. Input signal: **Start** max. 10mA, Low < 3VDC, High > 15VDC
5. Com input signal
6. Com output signal
7. +24V (P24)
8. 0V to earth



* all outputs which are supplied by (P 24) may consume together max. 500mA.

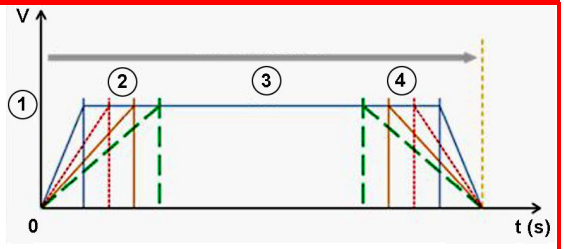
Ramp diagram

During applying cycle the label rate is not constant. See figure

At a subsequent printing or applying onto the product this effect has to be noted.

Procedure for compensation: At the beginning of the applying cycle the label rate is out of sync. To compensate this, a distance (acceleration) between peeler bar and product has to be adjusted. The distance can be read from the table with the help of speed and ramp setting. For operation with shaft encoder, the speed is equal to maximum speed.

Standard ramp setting is 2g. Other ramp settings may need to be tested internally on the basis of the task.
Ramp setting and label length significantly influence the average application rate. In other words, in extreme cases an increase of the application speed will not increase the application rate.



1. Label speed
2. Start-Ramp
3. Overrun
4. Stop-Ramp

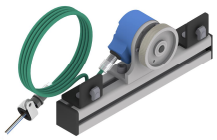
2 G acceleration
3 G acceleration
4 G acceleration
5 G acceleration

	2G		3G		4G		5G	
m/min	mm	ms	mm	ms	mm	ms	mm	ms
10	00,8	07	00,6	05	00,5	03	00,3	02
20	02,9	15	02,0	10	01,5	07	01,2	06
30	06,6	24	04,4	15	03,2	11	02,6	09
40	11,6	32	07,7	21	05,8	15	04,6	12
50	18,2	41	12,1	27	08,9	19	07,2	15
60	26,2	50	17,3	32	12,9	24	10,3	19
70	35,5	58	23,6	38	17,5	28	13,9	22

Skip-Function

The skip function allows that **one** label may be missing in a row on the label liner. The resulting gap is compensated by the controller, so that the application process is not affected by the gap. If two labels in a row are missing, this will no longer be compensated and the system will change to malfunction**.**

Shaft Encoder



For an optimal labeling result, the application speed of the labels must match with the transport speed of the products. If the products are always transferred with the same speed to the Alpha Compact, a fixed setting of application speed will be sufficient. If the transport speed of the products varies, the application speed will have to be synchronized with the help of a shaft encoder.

For Alpha Compact shaft encoders with HTL interface (24 DC, push-pull output) or with open collector output (NPN) are suitable.

TTL outputs (5V logic) are not suitable.

A parameterization of the shaft encoder can be either done by the HMI display or by USB. Thus it is essential that the customer provides either a HMI diplay or an USB. The function of the speed regulating controller can also be reached with HMI panel, but only if the shaft encoder is parameterized by one of the previously mentioned units.

Product Sensor

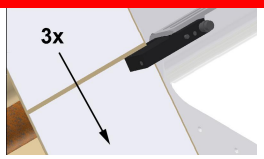
Standard setting of the labeler is PNP. This means product sensor 1, 2 and low label warning sensor are set to PNP. By changing the position of one jumper, the certain sensor can be switched to NPN. Additionally the labeler`s controller has to be reconfigured. For this an HMI display or USB is necessary. This can only be done by trained personnel, because for this working on the labeler`s electronic is necessary.

Labeler Function

The operation of the Alpha is possible via three different interfaces.
The customer serve two HMI, the HMI panel and HMI display. The third variant is an operating software, which can be operated via USB from an external computer.
This software is not suitable for the customer, it is mainly the service technicians and distributors to parameterize the dispenser.
It is imperative that one of the three operating options at Alpha dispenser is adapted. The Alpha can not be operated without control unit.
Only in an exceptional case, an operator without HMI or software is possible:
The customer starts the system via the I/O interface. In this case the dispenser is set ready for operation by the I/O signal and can then be operated with the set parameter values.

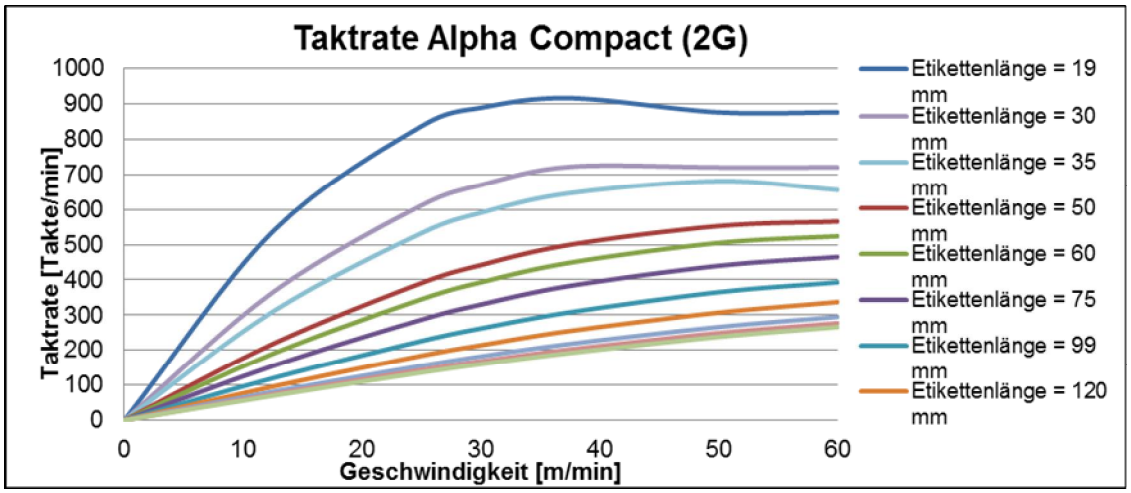
Calibration

When changing the label size, a calibration is necessary. By a simple activation of the push-button, automatically 3 labels are fed and all necessary parameters are stored safely and quickly.



Performance diagram

The Alpha Compact 120mm width may also cover higher speed ranges depending on label size. For an exact assignment of the application rates, a performance evaluation diagram is available.



v in $^{m}/_{min}$	Etikettenlänge [mm]										
	19	30	35	50	60	75	99	120	148	160	170
0	0	0	0	0	0	0	0	0	0	0	0
12,5	538	365	310	218	190	155	120	96	81	74	70
25	837	612	533	391	345	287	226	184	155	143	136
30	889	670	591	442	393	330	262	214	182	168	160
37,5	916	722	647	500	449	383	308	255	218	202	192
50	876	720	681	553	505	440	365	307	266	249	238
60	876	720	656	566	524	465	393	337	295	277	266

Minimal label distance on product

Based on rate of feed the Alpha Compact needs a definite processing time between two applications. Due to the temporal sequence of signals arise as intervals in which no label can be applied. Please note the following table:

Geschw. / Rampe	0 [m/min]	10 [m/min]	20 [m/min]	30 [m/min]	40 [m/min]	50 [m/min]
2G	3mm	4,2mm	8,7mm	16,1mm	26,3mm	41,1mm
2G/4G	3mm	3,9mm	7,4mm	13,1mm	20,5mm	30,5mm
3G	3mm	3,6mm	6,6mm	11,4mm	18,6mm	27,9mm
3G/6G	3mm	3,4mm	5,5mm	9,7mm	15,1mm	21mm
4G	3mm	3,4mm	5,5mm	8,9mm	14,3mm	20,4mm
5G	3mm	3,3mm	5,1mm	8,5mm	12,7mm	17,1mm